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INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

S-E-C-R-E-T 25X1

COUNTRY USSR (Moscow Oblast)

REPORT

SUBJECT
1. VIAM Aluminum Plate Manufacture
2. IL Production at Moscow Plant 30
3. Research Training at Moscow Aviation Institute

DATE DISTR. 13 January 1958

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VIAM Aviation Materials Institute 25X1

1. VIAM was in a position to manufacture aluminum plates for the integral construction method. These rolled aluminum plates were two to four centimeters thick and fifty-five centimeters wide, depending on the intended use. Their length was limited by the maximum weight of a metric ton. No further information. 25X1

IL-14 Production at Moscow Aircraft Plant No. 30

2. In autumn 1956, about 18 IL-14 aircraft were under construction in the main construction hall of the Moscow Aircraft Plant No. 30. Some of these IL-14's were normal transports and others were being equipped with 75 seats /sic/. Plant No. 30 employed a total of 50,000 workers. No further information.

Facilities and Production at Moscow Aircraft Plant No. 30

Attachment No. 1, seven pages, including two sketches;

3. About 1951 or 1952, the IL-14 and IL-28 models replaced IL-12 model production at Moscow Aircraft Plant No. 30. The IL-14 and the IL-28 were produced by the plant through 1954 and possibly, 1957. Plant production was of new

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aircraft and was not concerned with modification and/or repairs. Few problems were incurred when a new aircraft was phased into production. There was a gradual change-over until all shops were producing parts and components for the new models. This phase-in operation took about five months. The only sub-contracting procedure known of was that for engines, which were produced by Aircraft Engine Plant No. 45 and were received ready for installation.

Moscow Order of Lenin Aviation Institute i/n Ordzhonikidze

Attachment No. 2, 18 pages, including two sketches:

4. The institute offered six major undergraduate aviation courses, all of five and one half years' duration: aircraft construction, aircraft engine construction (jet and rocket), aircraft armament, aviation radio, aviation instruments, and economics. [redacted] the most difficult courses offered were aircraft construction and aircraft engine construction. The institute's facilities and technical equipment were considered adequate for student needs in quality and quantity. The only equipment [redacted] was found in the aerodynamics building, where there were two wind tunnels, a large and a small one. 25X1 25X1

5. Students majoring in aircraft engine construction were assigned research projects during their third year at the Moscow Aviation Institute. Students in courses of thermodynamics and internal combustion engines were assigned a project on which they did research during the entire third year. Students were required to design an internal combustion engine for a tank, a tractor, or automobile. At the end of the third year [redacted] students of the aircraft engine construction faculty were sent to Jet Engine Factory 500 for six weeks to get experience in industrial practices.[1] Most of their time was spent in the machine and foundry shops. For the course on construction design of aircraft engines, a project concerned with the design of an air compressor and an air pump was assigned for the fourth year. 25X1

6. In the last half of the fourth year [redacted] the aircraft engine construction course was divided into two sections: an aircraft jet engines section and a rocket engines section. The choice of section was elective. The latter section was smaller, numbering about one-third of the student-body for the fourth year. It was estimated that about 100 students matriculated in the aircraft engine course each year, and that about 500 students were enrolled in the entire course. The rocket engines section was generally referred to as the secret section. 25X1

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7. At the end of the fourth year [redacted], students in the aircraft jet engines section were sent to a jet engine plant which [redacted] was Aircraft Engine Plant No. 45.[2] For four or five weeks students were assigned to the mechanical shop and technological office of the plant, which was located in Stalinskiy Rayon, Moscow. At the end of the fifth year, students were required to undergo pre-graduation, on-the-job training for two months. Students in the aircraft jet engines section were sent to an unidentified engine plant located in the /former/ Molotovskiy Rayon on the outskirts of the city near a main theater, possibly on Stalinskaya ulitsa /sic/.[3] 25X1

9. The final semester at the Moscow Aviation Institute was devoted to research and preparation of a graduation project, such as the design of a jet engine, all details of which had to be defended before a faculty board. [redacted] 25X1

9. Only Soviet citizens began military training courses in the second year of study at the institute . In the fourth year, the students in military courses began an antiaircraft defense course sponsored by the MPVO (Mestnaya Protivo-Vozdushnaya Oborona). All students attended a civil defense course entitled MPVO which dealt with air defense measures for industrial installations.

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Attachment No. 1

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CENTRAL INTELLIGENCE AGENCY

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COUNTRY USSR (Moscow Oblast)

SUBJECT Facilities and Production at Moscow Aircraft Plant No. 30.

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Moscow - Aircraft Plant No. 30

Location, Identification, and Plant Layout

1. this plant was located adjacent to the southeast side of the Moscow Central Airfield on Botkinskiy proyezd and Leningradskoye shosse. The post office box number for this plant was 2402.

2. during World War II and prior to 1950 or the early part of 1951, there were two separate aircraft plants in the present location, i.e., Aircraft Plants No. 30 and No. 2. the numerical designation of the latter plant was the number referred to by the older workers. In that regard, before World War II, the numerical designation of Plant No. 30 was No. 1 and the numerical designation was changed either during the last stages of the war or immediately thereafter. Plant No. 30 (the so-called old Plant No. 1) was the larger. Both Plants No. 30 and No. 2 were producing fighter aircraft. Although the plants were adjacent, they were not subdivisions of one plant but two separate plants. The smaller plant, Plant No. 2, was located in the area between Leningradskoye shosse and Plant No. 30 as delineated on the Moscow Plant No. 30 at Plant No. 30 these plants were combined into one overall plant in 1950 or 1951, and currently constitute the area of Aircraft Plant No. 30.

3. (Reference : Page 7

Point 1. Moscow Central Airfield.

Point 2. Plant No. 30.

Point a. Foundry.

Point b. Assembly building.

Point c. Wing shop.

Point d. Tail section shop.

Point e. Nose section and canopy shop.

Point f. OKB (Otdel Konstruktorskogo Byuro) building.

Point g. Shop No. 3, a machine shop.

Point h. Shop No. 2, an auxiliary shop.

Point i. Shop No. 1, the control shop (control surfaces, pedals, columns).

Point 3. Annexed area. Formerly Aircraft Plant No. 2, annexed to and combined with Plant No. 30.

Point 4. Leningradskoye shosse.

Point 5. Dinamo Stadium.

Point 6. Botkinskiy proyezd.

Point 7. Apartment houses. One of several apartment house areas for the workers of the plant, consisted of four- or five-story brick buildings.

Point 8. Botkinskiy Hospital.

Aircraft Production

4. they were producing the Il-12 type aircraft. A year or so later, around 1951 or 1952, the Il-12 was phased out and replaced by the Il-28 type aircraft. the production of the Il-14 also began at the same time. The production of these aircraft, the Il-14 and the Il-28, continued

5. Production was of new aircraft and not aircraft for modification and/or repair. no aircraft repair or modification work was done at this plant. At least, no aircraft were brought back to the plant for such work. modifications if any occurred, would be made in the appropriate shop prior to final assembly and shipment of the aircraft from the plant. In that regard the aircraft types produced were all the same. tion to, and consequently did not notice. any

6. few problems were incurred when a new aircraft type was phased into production. on the whole, the new aircraft was phased in very smoothly. In such instances, the shops continued their usual work and gradually made the change-over until all the shops were producing parts and components for the new aircraft. The parts and components of the old aircraft were then maintained as spare parts.

7. this phase-in operation took about five months before the entire plant was producing the new parts and components and before the first new aircraft rolled off the assembly line. As stated above, this process created no major difficulties or bottlenecks and did not affect the number of workers. There were no layoffs or temporary increases in the labor force.

8. the plant was working at what was the normal peace-time rate and was producing two aircraft per 24-hour period.

9. two big machines, were used for shaping the metal for the fuselage, wing, and empennage.

10. except for the engines, flight and engine instruments, fuel tanks, tires, radio and related electronic equipment, and armament, all parts and components of the aircraft were produced at Plant No. 30. The engines were obtained from Aircraft Engine Plant No. 45. Basically, the engines were shipped in from Plant No. 45 ready for installation.

11. All aircraft parts and components produced at Plant No. 30 were used at this plant only, and none were shipped to other plants.

12. Shipments to the plant were quite frequent.

13. For processing raw materials, Plant No. 30 had an aluminum and elektron smelting forge where they prepared their own aluminum and elektron. In the smaller plant annexed in 1950-51, they had a small foundry for preparing other types of metal. If further forging was necessary, the material was then sent to the plant forge.

14. For the final assembly of aircraft, the plant had one assembly shop which was divided into two assembly lines directly adjacent and parallel. Between the two assembly lines was a passageway approximately four meters wide. On the extreme sides of the assembly lines were storage rooms for parts and tool rooms.

15. On the assembly line, the aircraft moved along on a track-driven conveyor which was electrically powered.

16. During the assembly process, the chief of a particular section of the assembly line insured that the necessary parts were requisitioned from the storeroom and available to the workers well enough in advance to forestall any delay. Most workers had already drawn their basic tools; consequently, only the particular component had to be drawn from the storeroom.

17. All parts installed in or on the aircraft during the assembly process, regardless of whether they were produced at Plant No. 30 or some other plant, were received factory tested and ready for installation. However, final cursory checks were made prior to installation to insure that the parts were sound and had incurred no damage during shipment or storage. This procedure was standard regardless of the type of aircraft being produced.

18. When the aircraft was completely assembled, it was taken outside the building, where fuel was added. [redacted] The aircraft was then taxied to a compass rose, and at the completion of that check, it was taxied to the gun revetment, where the guns were test fired. 25X1

19. At the completion of that test, the aircraft was test flown for about 15 minutes, i.e., once around the traffic pattern. If checked out satisfactorily, the aircraft was signed off and released by the test pilot and turned over to an SAF military pilot who flew it to its final destination.

20. The test flights were conducted from the adjacent airfield, Moscow Central Airfield, and the test pilots were civilians, the majority of whom were women.

21. [redacted] all the other tests [redacted] were completed in a matter of a few days, and [redacted] within a week or so after the aircraft rolled off the assembly line, it was flown to its destination. 25X1

22. [redacted] 25X1

23.

24. In addition to aircraft, Plant No. 30 was producing civilian commodities such as beds, bicycles, toys, silverware, and other small items that could be made from the scrappings. Up to 1950, the plant was also producing refrigerators, but production ceased at that time.

Labor Force

25. [redacted] from 20,000 to 30,000 workers were employed at the plant. The work force was pretty constant and there were never any sizeable increases or decreases in the work force. [redacted] 25X1

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26. The plant was operating six days a week, three shifts a day on a weekly rotational basis. The first shift worked from 0730 to 1615 hours, the second from 1615 to 2400 hours, and the third from 2400 to 0730 hours. All shifts had a 45-minute lunch period. From time to time there was overtime work, but not for all workers, and such work was voluntary. The worker received 30 to 35 per cent more pay for the overtime.

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27. All employees were granted 18 days annual leave regardless of seniority. Working conditions were good, and the plant was sanitarily clean. [redacted] these conditions did not vary.

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28. [redacted]

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Moscow Aircraft Plant No. 30

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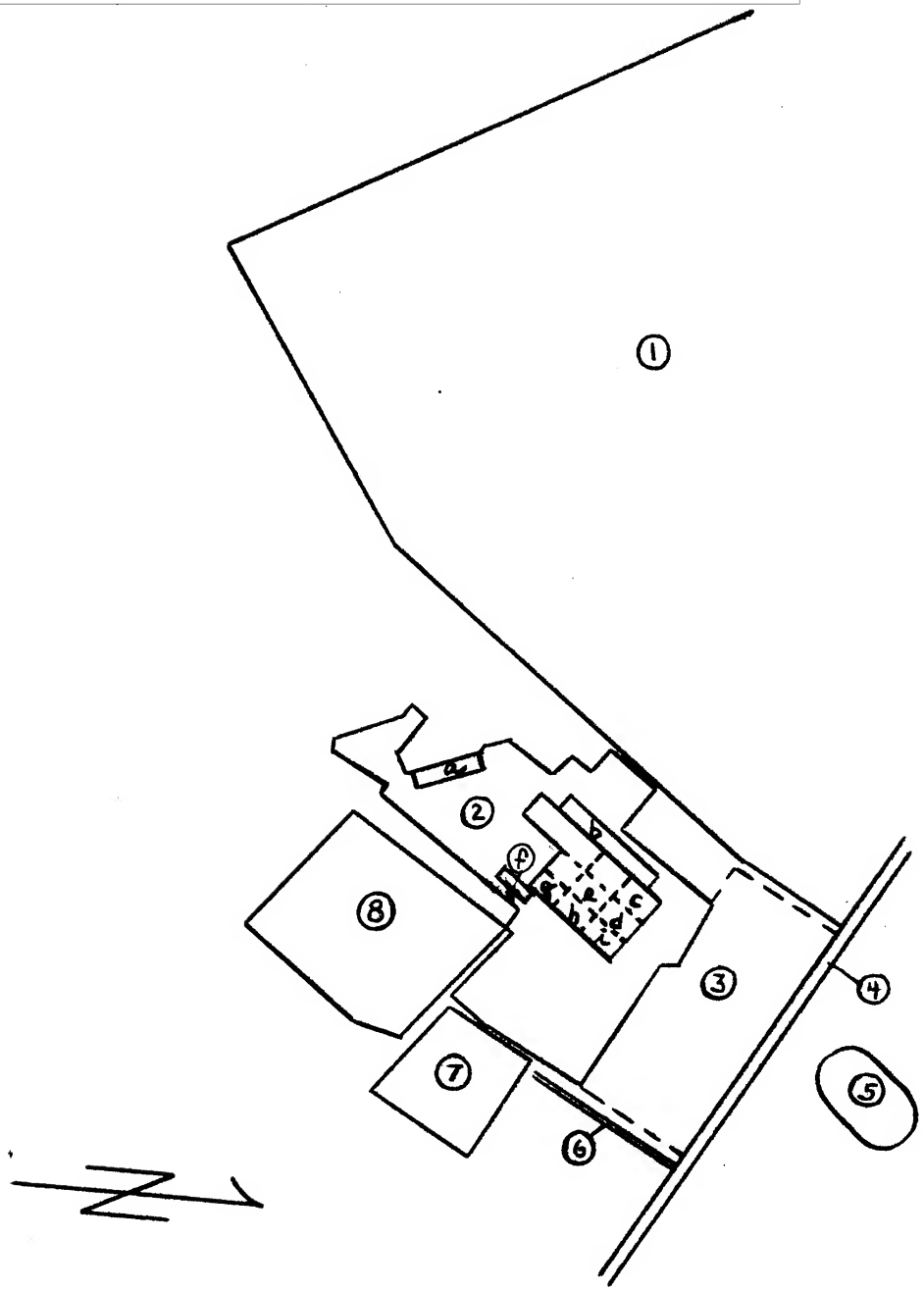

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Attachment No 2

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REPORT

SUBJECT Moscow Order of Lenin Aviation Institute im Ordzhonikidze

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MOSCOW AVIATION INSTITUTE I/N SERGO ORDZHONIKIDZE

Location and Identification

1. The Moscow Lenina Aviation Institute imeni Sergo Ordzhonikidze was located between Leningradskoye shosse No. 161 and Volokolamskoye shosse, Leningradskiy Rayon, Moscow. It was subordinate to the Ministry of Higher Education. Its purpose was to train and supply young engineers for the aviation industry.

2. Reference page 17 Pinpoint location of Moscow Aviation Institute imeni Sergo Ordzhonikidse andnew installations). 25X1

Point 1. Railroad line.

Point 2. Railroad line.

Point 3. Streetcar yard (Trolebusnyy Park).

Point 4. Leningradskoye shosse.

Point 5. New building

A new nine-story building of stone and concrete construction, approximately 350 m x 30 m. The construction was completed in 1956.

Point 6. Area of the Moscow Ordena Lenina Aviation Institute imeni Sergo Ordzhonikidze. The dotted-line area included the installations shown on page 18 on the sketch of this institute. 25X1

Point 7. A single track railroad connecting the two main railroad lines (points No. 1 and No. 2). It was approximately 200 m to 250 m west of the institute's compound.

Point 8. Volokolamskoye shosse.

Point 9. Five-story, stone and concrete building, situated on the corner of the street. Construction continued in 1956; probably more stories were to be added. To the east of this building was an old post office building.

Point 10. An area belonging to the institute. In this area, there were three five-story red brick buildings. Two buildings were occupied by radio faculty departments and laboratories. The third building was the students' dormitory(6th Zhiloy Korpus).

Point 11. A new apartment house. Nine-story stone and concrete construction, approximately 180 m x 25 m (E-W) and 80 m x 25 m (S-W). The construction was completed in 1956.

Point 12. Area of the Central Airfield.

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Institute Layout

3. (Reference - page 18 [redacted] Sketch of Moscow Aviation Institute imeni Sergo Ordzhonikidze. All measurements given below are approximate). 25X1

Point 1. Institute's Classroom Building 5th Korpus. Four-story red brick building 150 m x 20 m. [redacted] there was a plan to add a fifth story at some unknown future date. The building housed mainly the classrooms of the first and second year students and some of the third year students. The following departments (Kafedry) were located on the indicated floors: 25X1

Basement:
Department of material resistance and mainly its laboratories.
Ground floor:
Department of material resistance.
Department of higher mathematics.
Second and third floors:
Department of political education-basis of Marxism and Leninism.
Department of theoretical mechanics.
Fourth floor:
Department of descriptive geometry.
Drafting department.

Point 2. Auditorium. One-story annex equaling two stories in height. Here MPVO(Mestnoye Protivo Vozdusknaya Oborona)lectures and other group lectures were presented.

Point 3. Roads. Concrete roads leading into the institute's compound.

Point 4. Building construction area. In 1956, only foundations were completed on several buildings. [redacted]

25X1

Point 5. Flower nurseries.

Point 6. Classroom building. This was called the second motor building (Vtoroy Motornyy Korpus). A four-story red brick building 100 m x 20 m (SW to NE and 60 m x 40 m (SE to NW). The following departments were located on the designated floors:

Basement: various laboratories.
Ground floor: Department of industrial technology, Department of metal cutting, department of lathes and instruments (with allied shops), department of engine testing, also various laboratories and an aviation museum.
Second and third floors: Department of construction (design), department of turbo-compressor engines, department of gas-dynamics, department of thermal dynamics, department of industrial technology (also located on the first floor), department of internal combustion engines, department of rocket engines (ZH.R-D-Zhidkostno Reaktivnyy Dvigatel) and department of fuels and furnace units.

[redacted] 25X1

[redacted] these depart- on the second and third floor.
Third floor: Aviation museum. Here unknown types of conventional and jet engines were displayed. The floor also contained an auditorium.
Fourth floor: Special study halls for the senior students. There were also a reference library and a secret section which had classified reference material on jet engines. The senior students worked on their final graduation projects in these study halls.

Point 7. A new classroom building. Its construction began in the latter part of 1955 and by autumn of 1956 three stories were completed. This building was to be five or six stories high. It was constructed of stone and concrete, measuring 350 m x 30 m. [redacted] upon completion it would be used as the main classroom building, replacing the present one located at point 12 on the [redacted] sketch on page 18.

Point 8. A circle covered with grass and flowers.

Point 9. Four entrance gates leading into the institute's compound. Each gate was guarded by one guard armed with a pistol who checked passes.

Point 10. Aircraft construction building. (3rd Korpus), red brick construction [redacted]
Point 10-a. Hangar, located at the extreme northwest corner of the institute area. Students conducted experiments in aircraft construction of items such as aircraft wings and fuselage on model aircraft.
Point 10-b. Aircraft construction faculty wing, a four-story, red brick construction. It housed various laboratories and classes. [redacted] the department of metallography. On the fourth floor, there were study halls for the senior students.
Point 10-c. Extension of point 10-b wing. This section was either two or three stories high.
Point 10-d. Hangar. It was larger than the other hangar (point 10-a). It housed many unknown Soviet conventional and jet type aircraft (Older type) including fighter and ground support aircraft. One [redacted] propeller driven fighter aircraft was on display. During the last part of 1955, one twin jet engine, light bomber was brought to this hangar. [redacted] the landing gear was damaged after its first flight test. This bomber was soon moved to another unknown location. There were also three small helicopters, designations unknown.
Point 10-e. Foundry and welding shops. These shops located near the hangar contained a machine shop at the south western end of the building.

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Point 11. Two-story brick building. Approximately 50 m x 15 m, it contained various utility shops and the institute guards.

Point 12. The main classroom building (Osnovnoy Korpus), a four-story red brick construction, 250 m x 30 m. The following departments were located on the designated floors:

Ground floor: Department of physical culture (northern wing), and numerous departments of other courses (faculties) were located on the first and the remaining floors. The radio faculty was moved from this building to point 10, on the overlay on page 17.
Second or third floor : Physics department, political economics department, electrotechnics department, and MPVO department (southern wing).
Fourth floor: Department of chemistry.

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Point 12-a Library hall on the first floor.
Point 12-b Gymnasium on the first floor.
Point 12-c Movie and theater hall. It was an annex of the main building approximately two stories high.
Point 12-d Auditorium, also an annex to the main building.

Point 13. Volleyball court.

Point 14. Tennis courts.

Point 15. Sport stadium of the Moscow Aviation Institute (MAI-Moskovskogo Aviatsionnogo Instituta).

Point 16. Aerodynamics building, four-story red brick construction 70 m x 20 m (west wing) and 50 m x 40 m (east wing). It contained the hydraulic department, the aerodynamics department, and their laboratories. In addition, it contained two wind tunnels, a large one and a small one. Other faculties also had various laboratories located in the building.

Point 17. Fence. A wooden fence approximately two and a half meters high which enclosed the main compound of the institute.

Point 18. A small grocery store, one-story stucco brick building 50 m x 15 m.

Point 19. Faculty living quarters, a newly constructed nine-story stone and concrete building 150 m x 25 m completed in the end of 1955.

Point 20. Two or three wooden barracks. These buildings were slated to be destroyed.

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Point 21. Living quarters for institute employees. They were not occupied in 1956. The construction began in January 1956 and by the end of that year, four stories were completed. The building was constructed of stone and concrete

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Point 22. Student dormitory, a newly constructed five-story, gray brick building, 100 m x 100 m, completed in 1955.

Point 23. Faculty and employee living quarters, an old five-story red brick construction, 170 m x 25 m.

Point 24. Faculty and employee living quarters (5th Zhiloy Korpus), five-story red brick construction, 100 m x 20 m. Its construction began in 1952 and was completed in 1955.

Point 25. Sawmill.

Point 26. Student dormitory (4th Zhiloy Korpus), an old five-story stucco brick building 170 m x 20 m.

Point 27. Student dormitory (2nd Zhiloy Korpus), an old five-story red brick construction, 170 m x 20 m.

Point 28. Living quarters for students, employees and lecturers (1st Zhiloy Korpus), an old five-story red brick construction, 170 m x 20 m.

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Point 29. Faculty living quarters, a newly constructed five-story red brick building 100 m x 20 m completed in 1955.

Point 30. Road. A narrow road leading into the institute's housing area.

General information.

4. Courses

The institute offered six major aviation courses from which each student could pick one in accordance with his desires. These courses were as follows: aircraft construction, aircraft engine construction (jet and rocket), aircraft armament, aviation radio, aviation instruments, economics. The duration of all the courses taught at the institute was five and a half years.

the number of students enrolled at the institute approximately 100 students matriculated in the aircraft engine course annually, and that around 500 students were enrolled in the entire course.

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5. Qualifications.

Applicants who had maintained a numerical grade five and only one four during the last three years of the ten year school were exempt from the entrance examination. They were interviewed by one of the institute professors to determine their qualifications. Other applicants were required to take an examination in the following subjects: Physics, chemistry, oral and written mathematics, (algebra, geometry, and trigonometry) Russian language, and a foreign language. These examinations were administered 1 through 20 August of each year. The applicants spent one day on a given test and then were allowed to rest for two or three days. Each year, there were more applicants than the assigned quota for the freshman year, therefore, only those were admitted who attained the highest grade. The highest grade level was from 28 to 30 points. Each examination had a credit weight of five points except mathematics, which had ten points, since the examination was divided into two parts, oral and written.

6. Student stipend.

Students [redacted] were given a flat rate of 500 rubles per month throughout their stay at the institute. [redacted] received a little more than 200 rubles per month in the freshman year. This sum increased each year by an unknown amount until it reached more than 400 rubles during the fifth year. In order to be eligible for this stipend, a student was required to maintain numerical grade of 4 or 5. The stipend was canceled for one semester whenever a student received a grade of 2 or 3, even for one subject. Retakes of a given examination were allowed until the student passed it with a grade of 4 or 5. In such instances, the stipend was restored for the following semester. Any student who had maintained the highest grade, a 5, in all subjects was given a 25 percent increase in his monthly stipend. The monetary stipend was authorized for the student's personal expenses since the tuition fees and the necessary school equipment expenses were paid by the Soviet Government.

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7. Attendance hours.

Generally, students attended classes for eight hours a day, five days a week and on Saturday only half a day. Classes were held from 0800 to 1200 hours and from 1400 to 1600 daily. At times, the hours varied. Lectures and/or laboratory assignments were also conducted in the evening from 1600 to 2100 hours.

8. Foreign students

In the freshman year in the aircraft engine course, there were two Polish students. In other faculties of this institute, there were an unknown number of Polish, Czechoslovakian, Hungarian, Roumanian and Chinese students. [redacted]

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9. **The curriculum of the aircraft engine course.**

regardless of the course of study that the student selected, the subjects presented during the first scholastic year were the same for all the courses offered at the institute. With the beginning of the second year, the students began to study various subjects relative to their chosen fields. Each year was divided into two semesters at the end of which the mid-year and the final examinations were given. the semesters were numbered consecutively throughout the duration of the course rather than being numbered one and two of each year.

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the following curriculum:

a. **First year, first semester**

Subject	Hours and description
Higher mathematics	Two hours of lecture on a given day followed by two hours of practical exercises on the succeeding day. Weekly total: twelve hours.
Chemistry	The hours for lectures and laboratory experiments were the same as above. Laboratory work exceeded the lecture hours. Weekly total ten hours.
Physics	The hours for lectures and laboratory experiments were the same as above.
Descriptive geometry	The hours for lectures and practical exercises were the same as above. Weekly total of eight hours.
Blueprint drawing	Weekly total, eight to ten hours. The actual practice exceeded the lecture hours.
Industrial shops	Two hours of theory on a given day and four hours of practice on the following day. The theoretical lectures were presented only during the first three weeks. Later, students were given only practical exercises. Weekly total of eight hours.

Thermology of metals and blast furnaces	Weekly total of six to eight hours.
Foreign language	The main stress was placed on the [redacted] language, followed by [redacted] Weekly total of four hours.
Physical culture	Weekly total of four hours.

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b. First year, second semester

The subjects listed above in the first semester were continued during the second semester. In addition, the following subject was added:

Theoretical mechanics	Two hours of lectures and two hours of practice. Weekly total of ten to twelve hours.

c. Second year, third semester

The subjects listed above in the first year were continued during the second year with the exception of descriptive geometry and thermology of metals and blast furnaces. The following new subjects were introduced:

Resistance of materials	Two hours of lectures and two hours of laboratory and/or practical experiments. Weekly total of ten to twelve hours.
Theory of machinery and devices	Two hours of lectures and two hours of laboratory practice. Weekly total of eight to ten hours.
Military training	This training was for Soviet citizens only. [redacted]
Basis of Marxism and Leninism	Weekly total of six hours.

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d. Second year, fourth semester

The same subjects were continued from the third semester, second year with the exception of industrial shops. This subject was replaced by foundry works, which consisted of two hours of lectures and two hours of practical assignments. Weekly total of four hours.

e. Third year, fifth semester

The following subjects were continued from the second year curriculum:

Theoretical mechanics

Resistance of materials

Theory of machinery and devices

Foreign language

Basis of Marxism and Leninism

Military training

In addition, the following new subjects were introduced:

Components of machines	Weekly total of eight hours.
Electrotechnics	Lectures and laboratory work. Weekly total of ten hours.
Technology	Two hours of lectures, and two hours of practical exercises. Weekly total of ten hours.
Lathes and cutting tools	Two hours of lectures and two hours of laboratory work. Weekly total of eight to ten hours.
Hydraulics	Two hours of lectures and two hours of laboratory work. Weekly total of eight to ten hours.
Thermodynamics	Lectures and laboratory work. Weekly total of ten to twelve hours.
Internal combustion engines	Lectures and laboratory or practical assignments. Weekly total of eight to ten hours.
Metallography	Lectures and laboratory assignments. Weekly total of eight hours.

For the course on theory of machinery and devices, students were required to design some sort of a device. In addition, students were required to design a reductor in connection with the course on components of machines. Each student was assigned a consultant from the faculty to whom he could turn for guidance in developing the project. Both projects were carried out throughout the fifth semester of the third year.

The course on lathes and cutting tools required two homework projects, such as designing a given cutting tool and an indexing head for a turret lathe. This homework was assigned three weeks prior to the end of the semester.

f. Third year, sixth semester

The following subjects were continued from the fifth semester.

Foreign language

Resistance of materials

Electrotechnics

Technology

Lathes and cutting tools

Hydraulics

Thermodynamics

Internal combustion engines

The following additional subjects were introduced:

Aerodynamics	Two hours of lecture and two hours of laboratory practice. Weekly total of eight hours.
Welding and welding machines	Lectures and workshop practice. Weekly total of four to six hours.
Apparatuses for engine construction (Terminology, their construction, operation, etc)	Lectures and workshop practice. Weekly total of four to six hours.
Testing procedures (Testing motors and engines)	Lectures and laboratory practice. Weekly total of eight to ten hours.
Political economics	Weekly total of eight hours.

In connection with the thermodynamics and internal combustion engine subjects, each student was assigned a project on which he did research throughoutthe third year. Students were required to design an internal combustion engine for a tank, tractor, or automobile. At the end of the third year, students of this faculty were sent to jet engine plant No. 500 in Moscow for a period of six weeks to gain experience in industrial practices. They spent most of their time at the machine and foundry shops.

25X1

6. Fourth year, seventh semester

The following subjects were continued from the third year:

Foreign language

Technology

Aerodynamics

Testing procedures

Political economics

The new subjects introduced were:

Gas dynamics	Two hours of lectures and four hours of laboratory assignment. Weekly total of twelve hours.
Chemical thermodynamics	Two hours of lectures and two hours of laboratory work. Weekly total of eight hours.
Construction design of aircraft engines	Lectures and laboratory assignments. Weekly total of ten hours.
Production economy	Lectures and shop assignments in the institute. Weekly total of eight to ten hours.
Gas-turbine engines (G-T-D- Gazoturbinnyy Dvigatel)	Weekly total of four hours.
Ram-jet and rocket engines (Pryamotochnyye Vozdushno Reaktivnyye i Zhidkostno-Reaktivnyye Dvigateli)	They studied the theory, diagrams and construction of those engines, and had lectures and visits at the institute's museum. Weekly total of six hours.
Fuels and pumps	Weekly total of four hours of lectures.

The course on construction design of aircraft engines required a project on which the students did research during the fourth year. The project concerned the design of an air compressor and an air pump.

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b. Fourth year, eighth semester

At the begining of the eighth semester, the course was divided into two separate sections: The aircraft jet engine section and the rocket engines section. The choice of section was elective. The latter section was smaller, numbering approximately one third of the student body for the fourth year. This section was subdivided into three groups for classroom purposes. It was generally referred to as the secret section.

lectures were classified. some lectures were given on guided missiles.

25X1

The aircraft jet engines section consisted of six groups embodying approximately two-thirds of the student body. for the fourth year.

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The following subjects were continued from the seventh semester curriculum:

Foreign language

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Technology

Testing procedures

Gas dynamics

Construction design of aircraft engines

Production economy

Fuels and pumps

Political economy

The new subjects introduced were:

MPVO-Local antiaircraft defense
Basically, this subject was presented only to those students who were eligible for the course in military training.

all students attended a course entitled MPVO, which dealt with air defense measures of industrial installations, plant safety precaution, accident prevention, proper lighting, ventilation and noise elimination in the plants. Weekly total of six to eight hours.

25X1

Theory of vane compressors and air injection turbines	Two hours of lectures followed by two hours of laboratory assignments. Weekly total of ten to twelve hours. Student projects involved designing either a vane compressor or air injection turbine.

At the end of this year, students were sent to the jet engine plant which [redacted] was aircraft engine plant No. 45, to gain technological experience. For four or five weeks students were assigned to the mechanical shop and technological office of this plant. The plant was located in the Stalinskiy Rayon, Moscow. 25X1

i. **Fifth year, ninth semester**

The following subjects were continued from the eighth semester curriculum:

Technology

Gas dynamics

Construction design of aircraft engines

Production economy

Theory of vane compressors and air injection turbines

The new subject introduced was:

Theory of jet engines	Lectures and laboratory assignments which involved testing of engines and practical learning of their characteristics. Weekly total of eight to ten hours.

j. **Fifth year, tenth semester**

All subjects of the ninth semester were continued during this period. In the Summer of 1955, the students were required to undergo pre-graduation on the job training for two months. For this purpose they were sent to an unidentified engine plant located in Molotov. The plant was located on the outskirts of the city near the main theater. [redacted] this plant was on Stalinskaya Ulitsa. 25X1

25X1

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25X1

k. **Sixth year, eleventh semester**

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This semester began in the Autumn and ended in February The entire semester was devoted to the research and preparation of the graduation project. Each student of this course had to design a jet engine. Upon the completion of this work every student had to defend all the details of his design before the faculty board.

25X1

Miscellaneous

11. 25X1

12. Summer vacations were of two month duration for the first and second year students. From the third year on, students received only one month, since they were required to gain practical experience at various aviation plants.

13. In February of each year all students were given a 15-day vacation after the mid-year examinations. Saturday evenings and Sundays were adequate for recreational purposes. 25X1

14. From the students' point of view, the most difficult courses offered at this institute were aircraft construction and aircraft engine construction. The institute's machinery, instruments, and technical equipment were adequate for student needs in quality and quantity. Most of the machinery was of Soviet manufacture except for a few lathes and laboratory instruments which were products. 25X1

15. The professors and lecturers were considered well versed in their respective fields. Many of them were employed at various aviation plants or other State institutions in Moscow. Each student was issued a pass to enter the institute compound. The first pass was good for one year only. During the remaining years at the school, the passes were changed twice.

Personalities

16. Abramovich (fnu), professor lecturing on the subject of gas dynamics.

Belikov (fnu), professor lecturing on aviation technology.

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Inozemtsev (fnu), professor lecturing on the theory of jet engines. He was also the director of Moscow Ordena Lenina Aviation Institute imeni Serge Ordzhonikidze.

S-E-C-R-E-T

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Kishkin (fnu), doctor-professor lecturing on metallography.

Koshkin (fnu), doctor-professor lecturing on thermodynamics.

25X1

Krivoukhov (fnu), doctor-professor lecturing on lathes and instruments.

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Khodskov (fnu), doctor-professor, a corresponding member of the Moscow Academy of Sciences. He lectured on chemistry

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Kholshevnikov (fnu), doctor-professor lecturing on turbo-compressor engines.

Nikitin (fnu), lecturer. He lectured on aircraft construction.

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Ogurechnikov (fnu), lecturer supervising laboratory assignments on aircraft construction.

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Lapushkin (fnu), lecturer (Dotsent). He lectured on thermodynamics,

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Shevelyagina (fnu), female lecturer. First year mathematics instructor.

Skubachevskiy, Lev N., professor lecturing on the designs of jet engines.

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Tikhomirov or Tikhonirov (fnu), doctor-professor lecturing on resistance of materials.

Yaltunovskiy (fnu), lecturer. He lectured on first year mathematics.

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Pinpoint location of Moscow Aviation Institute i/n Sergo Ordzhonikidze and New Installations

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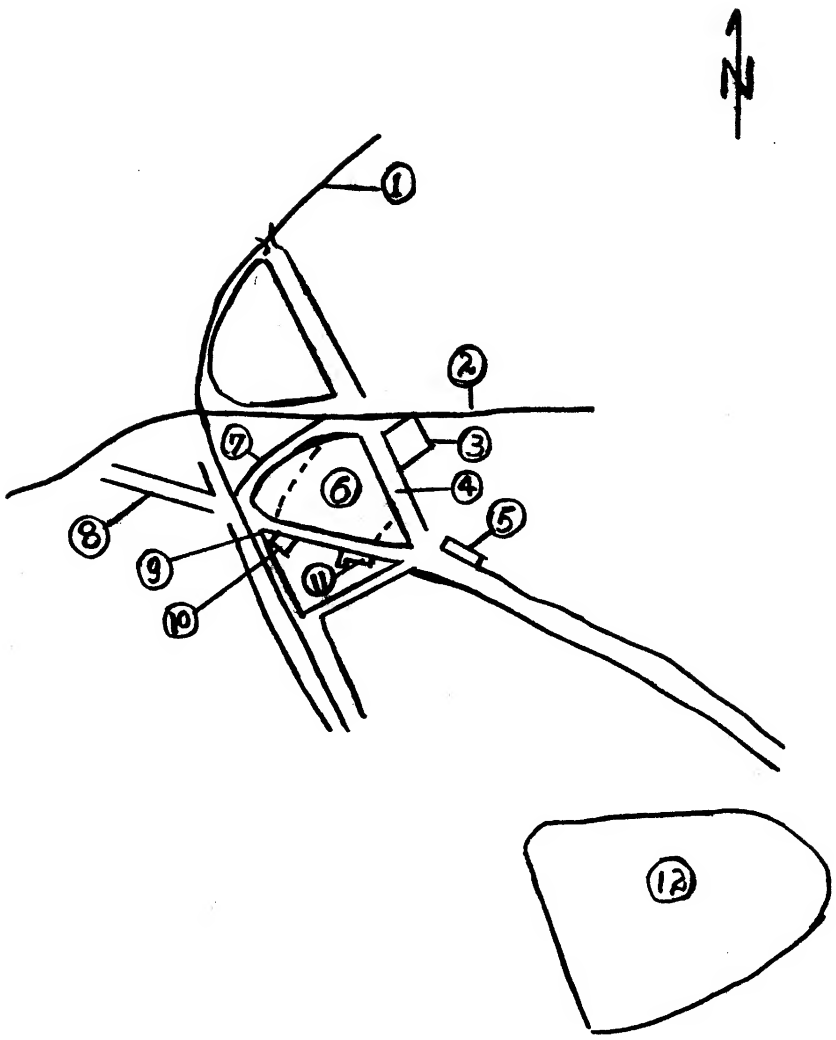

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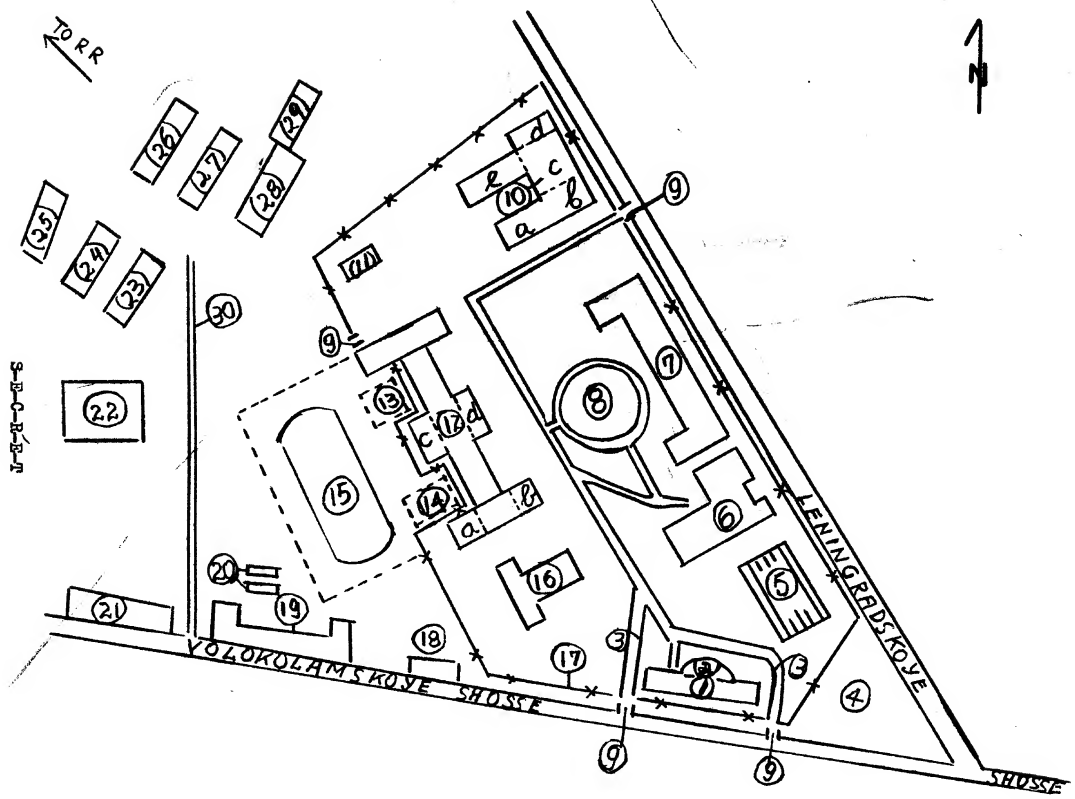

Sketch of Moscow Aviation Institute i/n Sergo Ordzhonikidze